

WHAT IS CLAIMED IS:

1. A method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, the method comprising the steps of:

checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

2. A method of forming a visual image having a specified shape on a surface of an optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, the method comprising the steps of:

acquiring image formation information associated to a

visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information together with the formed visual image on the surface of the same optical disk by using the optical writing process.

3. The method according to claim 2, further comprising the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information any more.

4. The method according to claim 2, further comprising the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

5. The method according to claim 2, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing

process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

6. The method according to claim 2, wherein the step of recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

7. The method according to claim 2, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

8. The method according to claim 2, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the

plurality of the recorded image formation information.

9. A method applicable when duplicating an original optical disk for forming a visual image on a surface of a duplicate optical disk by using an optical writing process of irradiating a laser beam onto the surface of the duplicate optical disk to form pits, the method comprising the steps of:

- acquiring image formation information useable for forming a visual image;

- embedding the acquired image formation information on a surface of the original optical disk;

- copying the image formation information embedded in the origin optical disk to the duplicate optical disk by using the optical writing process; and

- reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

10. A program designed for use in an optical recording apparatus which performs an optical writing process of irradiating a laser beam onto a surface of an optical disk to form pits for recording information, the program being executable by the optical recording apparatus to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:

checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

11. A program designed for use in an optical recording apparatus which performs an optical writing process of irradiating a laser beam onto a surface of an optical disk to form pits for recording information, the program being executable by the optical recording apparatus to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information together with the formed visual image on the surface of the same optical disk by using the optical writing process.

12. The program according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state after the image formation information is recorded so that the optical disk is made unable to additionally record information any more.

13. The program according to claim 11, wherein the method further comprises the step of placing the optical disk in a recording end state while leaving a reserved area on the surface of the optical disk so that the optical disk is made unable to additionally record information except for the reserved area, wherein the step of recording records the image formation information in the reserved area after the optical disk is placed in the recording end state.

14. The program according to claim 11, wherein the step of recording records the image formation information containing start address information specifying a position of the surface of the optical disk to start the optical writing process for forming the visual image, stop address information specifying another position to stop the optical writing process for forming the visual image, and pattern information specifying a pattern of irradiating the laser beam during the optical writing process for forming the visual image.

15. The program according to claim 11, wherein the step of

recording records the image formation information containing image data which represents the visual image and which is recorded in a format readily readable from the optical disk for reproduction of the visual image on a display.

16. The program according to claim 11, wherein the step of recording is capable of consecutively recording a plurality of image formation information corresponding to a plurality of visual images, such that each image formation information contains address information which specifies a start address of next image formation information or specifies a reserved area for next image formation information.

17. The program according to 11, wherein the step of recording is capable of recording a plurality of image formation information corresponding to a plurality of visual images, so that the step of forming can successively form the plurality of the visual images on the surface of the optical disk without overlapping with each other based on the plurality of the recorded image formation information.

18. A program designed for use in an optical recording apparatus which performs an optical writing process of irradiating a laser beam onto a surface of an optical disk to form pits for recording information, the program being executable by the optical recording apparatus to carry out a method applicable when duplicating an original optical disk

for forming a visual image on a surface of a duplicate optical disk by using the optical writing process, wherein the method comprises the steps of:

acquiring image formation information useable for forming a visual image;

embedding the acquired image formation information on a surface of the original optical disk;

copying the image formation information embedded in the origin optical disk to the duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

19. An optical recording apparatus comprising a mechanical drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk to form pits for recording information, and a controller for controlling the mechanical drive and the optical pickup to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:

checking a recording state of an optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;



placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

20. An optical recording apparatus comprising a mechanical drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk to form pits for recording information, and a controller for controlling the mechanical drive and the optical pickup to carry out a method of forming a visual image having a specified shape on a surface of an optical disk by using the optical writing process, wherein the method comprises the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information together with the formed visual image on the surface of the same optical disk by using the optical writing process.

21. An optical recording apparatus comprising a mechanical

drive for mounting and rotating an optical disk, an optical pickup for performing an optical writing process of irradiating a laser beam onto a surface of the optical disk to form pits for recording information, and a controller for controlling the mechanical drive and the optical pickup to carry out a method applicable when duplicating an original optical disk for forming a visual image on a surface of a duplicate optical disk by using the optical writing process, wherein the method comprises the steps of:

- acquiring image formation information useable for forming a visual image;

- embedding the acquired image formation information on a surface of the original optical disk;

- copying the image formation information embedded in the origin optical disk to the duplicate optical disk by using the optical writing process; and

- reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.

22. An optical disk produced by a method of forming a visual image having a specified shape on a surface of the optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, wherein the method comprises the steps of:

checking a recording state of the optical disk to confirm that the optical disk is left unrecorded or is capable of additionally recording information;

placing the optical disk in a recording end state while an available area is left on the surface of the optical disk, so that the optical disk is made unable to additionally record information on the available area any more; and

forming the visual image in the available area of the optical disk by using the optical writing process.

23. An optical disk produced by a method of forming a visual image having a specified shape on a surface of the optical disk by using an optical writing process of irradiating a laser beam onto the surface of the optical disk to form pits, the optical disk being capable of recording information on the surface thereof by the optical writing process, wherein the method comprises the steps of:

acquiring image formation information associated to a visual image to be formed;

forming the visual image on the surface of the optical disk based on the acquired image formation information by using the optical writing process; and

recording the image formation information together with the formed visual image on the surface of the optical disk by using the optical writing process.

24. A duplicate optical disk produced by a method applicable

when duplicating an original optical disk for forming a visual image on a surface of the duplicate optical disk by using an optical writing process of irradiating a laser beam onto the surface of the duplicate optical disk to form pits, wherein the method comprises the steps of:

acquiring image formation information useable for forming a visual image;

embedding the acquired image formation information on a surface of the original optical disk;

copying the image formation information embedded in the origin optical disk to the duplicate optical disk by using the optical writing process; and

reproducing the visual image on the surface of the duplicate optical disk by using the optical writing process based on the copied image formation information.